

wherein the total percentage of the Ti and Zr in said alloy is from 90 to 74 at.%, Sn is present in an amount of 3-6 at.%, and said alloy having shape memory and superelasticity characteristics at human body temperature.

18. The alloy as claimed in claim 17, wherein the total percentage of Nb and Ta in said alloy is from 8 to 20 atom%.

19. An orthodontic appliance comprising the alloy as defined in Claim 17.

20. An artificial dental implant comprising the alloy as defined in claim 17.

21. An artificial arthrosis comprising the alloy as defined in Claim 17.

22. A bone material comprising the alloy as defined in Claim 17.

23. A bone fixator comprising the alloy as defined in Claim 17.

24. A thrombus inhibitor comprising the alloy as defined in Claim 17.

25. A catheter introducer comprising the alloy as defined in Claim 17.

26. A Harrington bar comprising the alloy as defined in Claim 17.

27. An artificial joint comprising the alloy as defined in claim 17.--

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#### REMARKS<sup>1</sup>

Claims 1-3 and 8-16 are pending and stand rejected. In particular, claims 1 and 3 stand rejected under 35 U.S.C. § 102(b) over the English language translation of the abstract of JP 58-157934A to Nakanishi et al. ("Nakanishi"). Claim 8 stands rejected as allegedly obvious over Nakanishi in view of U.S. Patent No. 5,429,504 to Farzon-Nia et al. claims 9, 10, 11 and 16 stand rejected as allegedly unpatentable over Nakanishi in view of Japanese Patent to Araya (JP 10-219375). Claim 12 stands rejected as allegedly unpatentable over Nakanishi in view of U.S. Patent No. 6,127,597 to Beyer et al. Claim 13 stands rejected as allegedly unpatentable over Nakanishi in view of U.S.

Patent No. 4,795,459 to Regan. Finally, claim 14 stands rejected as allegedly unpatentable over Nakanishi in view of U.S. Patent No. 5,215,105 to Kizelshteyn et al. In view of the amendments and the remarks provided herein Applicants respectfully submit that these rejections are now overcome and the claims are in condition for allowance.

#### Claim Amendment

Claim 1 has been amended to recite, among others: "A Tr-Zi alloy." Claim 16 has been amended to correct a grammatical error by replacing "A" with "An". Further new claims 17 through 27 have been added to further define and claim the invention.

Entry of amendment and reconsideration on the merits are respectfully requested.

#### Anticipation Rejection

Applicants respectfully submit that as amended herein, claim 1 is not anticipated by Nakanishi. In particular, Applicants note that Nakanishi does not disclose or suggest the alloy recited in claim 1.

In the English language translation of the Patent Abstracts of Japan, Nakanishi alleges a Ti-Ni alloy prepared by adding one or more elements selected from the group consisting of Mo, V, Mn, Cr, Al and Sn to a Titanium-Nickel alloy. From this limited translation, it appears that Nakanishi is directed to Ti-Ni alloys. In contrast, claim 1 is directed to Ti-Zr alloys. To further define and better claim an embodiment of the invention, claim 1 has been amended herein to reciting "a Ti-Zr alloy". It is respectfully submitted that the invention recited in claim 1 is not anticipated by Nakanishi because

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<sup>1</sup> Applicants' Counsel thanks Examiner Wilkins for the courtesies extended during the telephonic interview held January 15, 2003.

while the reference is allegedly directed to Ti-Ni alloys, Applicants' invention, as recited in claim 1, is directed to a Ti-Zr alloy.

Claim 3 depends from claim 1. It is respectfully submitted that claim 3 is patentable at least because of its dependence from claim 1, which is neither anticipated nor rendered unpatentable by the art of record. Accordingly, additional reasons for patentability of claim 3 will not be proffered here.

Reconsideration and withdrawal of the anticipation rejection over Nakanishi is respectfully requested.

#### Obviousness Rejection

Applicants respectfully submit that claim 1 and all other claims depending therefrom, either directly or indirectly, are not obvious over the prior art of record. Each of claims 8 through 16 depends either directly or indirectly from claim 1 which, as discussed, is neither anticipated nor rendered unpatentable by the art of record. Accordingly, it is respectfully submitted that each of claims 8 through 16 is patentable at least for the reason that it depends from an independent claim which is neither anticipated nor rendered obvious by the art of record. Hence, additional reasons for patentability of each of claims 8 through 16 will not be proffered here. Reconsideration and withdrawal of the obviousness rejection of each of claims 8 through 16 are respectfully requested.

#### New Claims 17-27

At paragraph 13 of the Office Action, the Examiner objects to claim 2 as being dependent upon a rejected claim. However, the Examiner adds that claim 2 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Accordingly, independent claim 17 has been added to further define and claim Applicants' invention. Support for claim 17 is found throughout the specification, and in particular, at the originally-filed claims 1 and 2. Claims 18-27 have been also added as dependent claims. Support for each of claims 18-27 is also found throughout the specification, and in particular, at the originally-filed claims 8-16.

Applicants respectfully submit that each of the newly added claims 17-27 is allowable over the art of record.

### CONCLUSION

~~It is therefore respectfully submitted that~~ claims 1-3 and 8-27 are now in condition for allowance. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

The Examiner is invited to contact the undersigned attorney if a telephonic communication is believed to be helpful in advancing the examination of the present application.

The Office is hereby authorized to charge any additional fees, including an extension-of-time fee, or credit any overpayments under 37 C.F.R. §1.16 or §1.17 to Deposit Account No. 11-0600.

Respectfully submitted,

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Date: 1/31/03

**RED-LINED COPY OF THE AMENDMENT**

**IN THE CLAIMS:**

Please amend the claims as follows. For the Examiner's convenience, all of the claims whether amended or not are presented herein below:

1. (AMENDED) ~~An~~ A Ti-Zr alloy comprising (1) Sn, (2) at least one of Ti and Zr, and (3) at least one of Nb and Ta;

wherein Sn is present in an amount of 3-6 at% and said alloy having shape memory and superelasticity characteristics at human body temperature.

2. (UNCHANGED) The alloy as claimed in claim 1, wherein the total percentage of the Ti and Zr in said alloy is from 90 to 74 atom%.

3. (UNCHANGED) The alloy as claimed in claim 1, wherein the total percentage of Nb and Ta in said alloy is from 8 to 20 atom%.

8. (UNCHANGED) An orthodontic appliance comprising the alloy as defined in Claim 1.

9. (UNCHANGED) An artificial dental implant comprising the alloy as defined in claim 1.

10. (UNCHANGED) An artificial arthrosis comprising the alloy as defined in Claim 1.

11. (UNCHANGED) A bone material comprising the alloy as defined in Claim 1.

12. (UNCHANGED) A bone fixator comprising the alloy as defined in Claim 1.

13. (UNCHANGED) A thrombus inhibitor comprising the alloy as defined in Claim 1.

14. (UNCHANGED) A catheter introducer comprising the alloy as defined in Claim 1.

15. (UNCHANGED) A Harrington bar comprising the alloy as defined in Claim 1.

16. (AMENDED) ~~A~~ An artificial joint comprising the alloy as defined in claim 1.

Please add the following new claims:

--17. An alloy comprising (1) Sn, (2) at least one of Ti and Zr, and (3) at least one of Nb and Ta;

wherein the total percentage of the Ti and Zr in said alloy is from 90 to 74 at.%, Sn is present in an amount of 3-6 at.%, and said alloy having shape memory and superelasticity characteristics at human body temperature.

18. The alloy as claimed in claim 17, wherein the total percentage of Nb and Ta in said alloy is from 8 to 20 atom%.

19. An orthodontic appliance comprising the alloy as defined in Claim 17.

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